

WebSphere software

IBM WebSphere Everyplace Embedded Software for Telematics



Highlights

- **IBM WebSphere® embedded software supports the entire automotive product lifecycle from initial concept to end of life**
- **Software Development Kit (SDK) enables application development for telematics reference designs based on the Hitachi SH4 architecture**
- **SDK provides a full set of development tools, including runtimes for evaluation**
- **Brings open, standards-based technologies to automotive telematics applications**
- **Includes remote software management**

On the road and in demand

As demand for in-vehicle information systems continues to grow, so does the desire for more end-user services, more entertainment content and more stable system performance. These changing market realities present a tremendous opportunity for developers—by streamlining the development of applications and devices, they can generate more revenue and differentiate themselves from the competition.

IBM pervasive computing software enables you to capitalize on these new opportunities and respond to industry demands. Built from the ground up, our software is designed for the embedded environment. We can provide you with a pervasive device platform based on open standards, making it easier to adapt new devices to any mobile environment, now and down the road.

SDK enables developers to quickly build telematics devices

IBM offers a range of services to expedite and simplify the development of embedded devices. A key component of these services is the SDK—a toolkit used to create applications for a specific operating platform. The SDKs support a variety of platforms including the Hitachi SH4 application processor.

This telematics reference platform consists of a development board containing reference hardware, including an Hitachi SH4 application processor with input-output circuitry supporting a variety of automotive solutions such as diagnostic, fleet management, navigation and entertainment applications.

Contents of IBM WebSphere Everyplace™ Software for Telematics SDK

<i>Board Evaluation CD</i>	<ul style="list-style-type: none"> • Boot image (enabling software, including device drivers) • Automotive Frameworks (Device Kit, Device Agent, WebSphere Everyplace Wireless Gateway Embedded Client, MQe Embedded Client, DB2e Embedded Client)
<i>WebSphere Studio Device Developer CD</i>	<ul style="list-style-type: none"> • SmartLinker • Build and launch • MicroAnalyzer • WebSphere Custom Environment • Java™ Development Tooling
<i>QNX® Evaluation CD</i>	<ul style="list-style-type: none"> • QNX Neutrino® RTOS • Photon® microGUI Windowing System • Multimedia-ready • Development Environment • C Development Tooling

This SDK is employed as a component of an IBM telematics enablement services contract, which can encompass a range of services including general telematics consulting, prototype development, full-scale production and long-term maintenance. The SDK includes deliverables such as runtime modules and other tools that enable a developer to get an application up and running on the reference hardware in a development environment for pre-production projects.

The Device Kit provides tools and runtimes that support the rapid development of modular, portable and hardware independent software.

In conjunction with the Tivoli® Device Management Server, the Device Agent provides support for highly scalable remote device configurations, Open Services Gateway initiative (OSGi) bundle installation, and native code installation.

The WebSphere Everyplace Wireless Gateway Embedded Client provides an optimized and secure Internet Protocol (IP) tunnel for communication with the WebSphere Everyplace Wireless Gateway using a variety of wireless and wireline networks.

The MQe Embedded Client provides an assured messaging infrastructure where small footprints and optimized communication protocols are required.

The DB2e Embedded Client provides a local independent relational database on a telematics platform and allows for the query of information on remote servers when a connection is available.

Support throughout the automotive lifecycle

IBM telematics services support and enable end-to-end telematics design and development throughout the automotive lifecycle (Figure 1), starting with the proof of concept. During the development phase, shown here as Pilot & Prototypes (“A” Sample) and Trials (“B” and “C” Samples), the services and SDK help developers build software applications on the underlying stack. When the hardware and software are

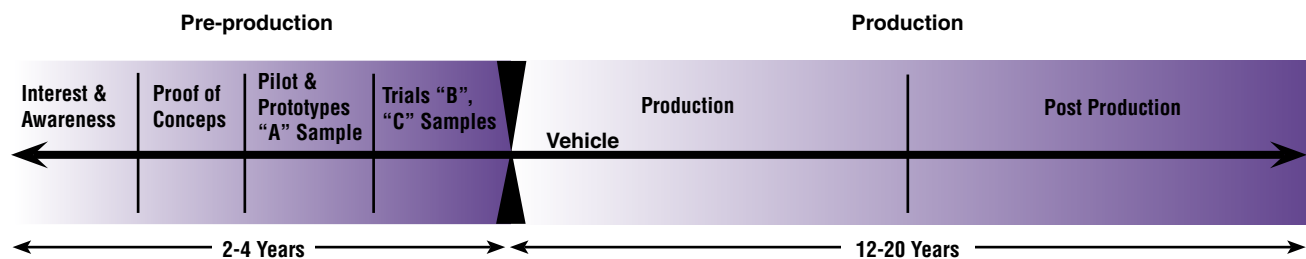


Figure 1—IBM telematics enablement services support the entire automotive lifecycle

ready for production, IBM negotiates the licensing of software runtimes to the device manufacturer.

IBM services contracts span the pre-production and production phases of the product lifecycle, providing support and expertise for all aspects of a telematics system and for all elements of the supply chain. SDK tools and components enable embedded device manufacturers to

create new telematics applications. Open standards and industry partnerships drive the process.

An essential combination of services and long-term support span the automotive telematics development and product lifecycles, backed with high performance software technologies.

WebSphere Everyplace Embedded Software: building on a firm foundation

The WebSphere Everyplace Embedded product group is part of the IBM WebSphere software platform—a comprehensive set of integrated, award-winning e-business solutions. At every step in the e-business cycle, the WebSphere software platform delivers the flexibility needed for growth.

SDK Hardware

<i>Platform</i>	<ul style="list-style-type: none">• Hitachi SH4 board with Application Processor: 200 MHz, 32 Mb Flash, 64Mb RAM
<i>Peripherals</i>	<ul style="list-style-type: none">• Ethernet: (IEEE 802.3 Compliant) Serial (COM) port, Audio In/Out, USB

SDK Software

<i>OS/System Services</i>	<ul style="list-style-type: none">• QNX RTOS, POSIX file system
<i>VM/Class Libraries/SMF</i>	<ul style="list-style-type: none">• WebSphere Custom Environment• Gateway Plus Class Libraries—an implementation of a subset of the Java 2 (JDK 1.3) specifications, Security, Service Management Framework (SMF) (Compliant with OSGi 2.0—device access, configuration and user administration, Event Manager, SMF Administrative Services, Preference Services, Logging Services)
<i>Networking Services</i>	<ul style="list-style-type: none">• Tiny TCP/IP stack, TCP/IP utilities subset (FTP, Telnet, NFS, TFTP)
<i>Browser/Plug-ins</i>	<ul style="list-style-type: none">• P3ML browser components available for building into client application
<i>Remote Management</i>	<ul style="list-style-type: none">• Client function only: device configuration, software distribution, native install/uninstall, prescripts (dependency-checking and resource evaluation)
<i>Other Utilities and Functions</i>	<ul style="list-style-type: none">• DB2e, MQe, WebSphere Everyplace Wireless Gateway Client (GPRS, 3DES Encryption, payload compression)

This robust platform supports the building of diverse information technology environments, using industry-standard Java and Extensible Markup Language (XML) technology to create next-generation applications that differentiate them from the competition.

Advance to a powerful platform for integrated e-business—the WebSphere software platform.

Meeting your needs

IBM is a worldwide, leading e-business company, offering a wide range of services and technologies

that help businesses take full advantage of emerging innovation. Through pervasive computing, we are extending e-business applications to the new class of connected embedded devices. We understand your business, and we can provide you with an end-to-end solution that can help you get to market quickly—at the speed your customers demand.

For more information

To learn more about IBM telematics solutions, please visit our Web site at ibm.com/pvc or e-mail any inquiries to telematx@us.ibm.com



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